

## New patent claims

1. Fuel injection system with a fuel reservoir (10) to which fuel is fed via at least one first pump (12) and from which fuel is discharged via injectors (14),  
5 with the feed pressure of the first pump (12) being set as a function of the fuel temperature and the vaporization behavior of the fuel by a control and/or regulation device (16) which controls the first pump (12),  
characterized in that  
10 the control and/or regulation device (16) determines the vaporization behavior of the fuel through modelling.
2. Fuel injection system with a fuel reservoir (10), to which fuel is fed via at least one first pump (12) and from which fuel is discharged via injectors (14), with the feed pressure  
15 of the first pump (12) being set as a function of the fuel temperature and the vaporization behavior of the fuel by a control and/or regulation device (16) which controls the first pump (12),  
characterized in that  
20 a Lambda probe output signal is employed for determining the vaporization behavior of the fuel.
3. Fuel injection system in accordance with claim 1 or 2,  
characterized in that  
the feed pressure of the first pump (12) is set to a minimum  
25 value at which a cavitation through vaporization of fuel is just avoided.
4. Fuel injection system in accordance with one of the previous claims,  
characterized in that  
30 the control and/or regulation device (16) determines the fuel

temperature through modelling.

5. Fuel injection system in accordance with one of the previous claims,

characterized in that

5 the fuel temperature recorded by a temperature sensor is fed to the control and/or regulation device (16).

6. Fuel injection system in accordance with one of the previous claims,

characterized in that

10 the vaporization behavior of the fuel is determined via a fuel volume adaptation algorithm.

7. Fuel injection system in accordance with one of the previous claims,

characterized in that

15 the first pump is a low-pressure pump (12), and that a second pump in the form of a high-pressure pump (18) is connected downstream from the low-pressure pump (12)

8. Method for determining the feed pressure of a first pump (12) of a fuel injection system which features a fuel reservoir

20 (10) to which fuel is fed via the first pump (12) and from which fuel is discharged via injectors (12), with the feed pressure of the first pump (12) being set as a function of the fuel temperature and the vaporization behavior of the fuel by a control and/or regulation device (16) which controls the first  
25 pump (12),

characterized in that

the vaporization behavior of the fuel is determined by modelling.

9. Method for determining the feed pressure of a first pump

30 (12) of a fuel injection system which features a fuel reservoir

(10) to which fuel is fed via the first pump (12) and from which fuel is discharged via injectors (12), with the feed pressure of the first pump (12) being set as a function of the fuel temperature and the vaporization behavior of the fuel by a control and/or regulation device (16) which controls the first pump (12),

characterized in that a Lambda probe output signal is employed for determining the vaporization behavior of the fuel.

10 10. Method in accordance with claim 8 or 9, characterized in that the feed pressure of the first pump (12) is set to a minimum value at which a cavitation through vaporization of fuel is just avoided.

15 11. Method in accordance with one of the claims 8 to 10, characterized in that the fuel temperature is determined by modelling.

12. Method in accordance with one of the claims 8 to 11, characterized in that  
20 the fuel temperature is recorded via a temperature sensor.

13. Method in accordance with one of the claims 8 to 12, characterized in that the vaporization behavior of the fuel is determined via a fuel volume adaptation algorithm.

25 14. Method in accordance with one of the claims 8 to 13, characterized in that the first pump is a low-pressure pump (12), and that a second pump in the form of a high-pressure pump (18) is connected downstream from the low-pressure pump (12)